

84

Seat No : _____

No of Printed Pages: 03

84

SARDAR PATEL UNIVERSITY
M. Sc. (Semester-III) Examination
Monday, 25th November 2019
2.00 PM to 5:00 PM
Industrial Polymer Chemistry, PS03EIPC21
(Selected Topics in Polymers-I)

Total Marks : 70

Q-1

Answer the following:

[8]

1. In glycogen, glucose residues form a straight chain via which of the following...
 - (i) α -1,4 linkages
 - (ii) α -1,6 linkages
 - (iii) β -1,4 linkages
 - (iv) α -1,4 linkages with glycogenin at the non reducing end
2. Which of the following linkage is not observed in Lignin?
 - (i) α -alkyl ether bond
 - (ii) alkyl-aryl carbon-carbon linkage
 - (iii) α -aryl ether bond
 - (iv) biphenyl carbon-carbon linkage
3. Which one of the following is not a natural fiber?
 - (i) nylon
 - (ii) cotton
 - (iii) wool
 - (iv) flax
4. Orlon is a polymer of
 - (i) acrylonitrile
 - (ii) vinyl chloride & vinylidene chloride
 - (iii) terephthalic acid & ethane-1,2-diol
 - (iv) caprolactum
5. Which one of the following statements is not true?
 - (i) natural rubber has the trans-configuration at every double bond
 - (ii) Buna-S is a copolymer of butadiene and styrene
 - (iii) In vulcanization, the formations of sulphur bridges between different chains make rubber harder and stronger.
 - (iv) natural rubber is a 1, 4-polymer of isoprene
6. The monomers of Buna-S rubber are...
 - (i) styrene and butadiene
 - (ii) isoprene and butadiene
 - (iii) butadiene
 - (iv) vinyl chloride and sulphur

(P.T.O.)

(1)

7. What is Buna N rubber?
- acrylonitrile butadiene
 - chloroprene
 - styrene-butadiene
 - polyisoprene
8. Which of the monomers of the following gives the polymer neoprene on polymerization?
- $$\begin{array}{c} \text{CH}_2=\text{C}-\text{CH}=\text{CH}_2 \\ | \\ \text{Cl} \end{array}$$
 - $\text{CCl}_2 = \text{Cl}_2$
 - $\text{CH}_2 = \text{CHCl}$
 - $\text{CF}_2 = \text{CF}_2$

Q-2 Answer the following (ANY SEVEN) :

[14]

- What is alpha and beta glycoside linkage?
- What is lignin and its function?
- What is the difference between glucose and glycogen?
- List out the disadvantages of polyethylene terephthalate fibers.
- What is the function of glucose in Cuprammonium process for rayon?
- Define the term : Vulcanization
- List the vulcanizing agents for rubber.
- Why most of the synthetic rubbers are copolymers?
- What are the advantages of synthetic rubber?

- Q-3
- List out the different starches utilized industrially and describe the manufacturing process of corn starch. [6]
 - Give classification of water soluble polymers. Why synthetic water soluble polymers are more commercially important than natural water soluble polymers? [6]

OR

- Write a note on dextrinization of starch. [6]

- Q-4
- Write a short note on Viscous rayon. [6]
 - Discuss briefly about Dacron. [6]

OR

- List out the processes which are commonly used to form polymeric fibers and explain any one in detail. [6]

- Q-5 (a) Describe the production of natural rubber. [6]
(b) Differentiate Natural Rubber and Gutta Percha. [6]

OR

- (b) Draw the scheme of: (i) peroxide vulcanization of natural rubber and [6]
(b) Ribbed Smoked Sheet (RSS) rubber
- Q-6 (a) Describe the production process of neoprene rubber. [6]
(b) Give an account on Emulsion polymerization of SBR. [6]

OR

- (b) Write about the sequential steps of production of synthetic rubber. [6]

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